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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,594	12/27/2000	Terry L. Kendall	42390P10071	1642

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EXAMINER	
CHACE, CHRISTIAN	
ART UNIT	**PAPER NUMBER**
2189	

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/752,594	KENDALL ET AL.	
	Examiner	Art Unit	
	Christian P. Chace	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-14,17-20 and 22-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-14,17-20 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 April 2005 has been entered.

Terminal Disclaimer

The terminal disclaimer filed on 8 April 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent #6,834,323 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

This Office action has been issued in response to amendment field 8 April 2005. Claims 1-2, 5-14, 17-20, and 22-24 are pending. Applicants' arguments have been carefully and respectfully considered, but they are not persuasive. However, as this is a first action on merit following an RCE, this action has NOT been made final.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Permanently disabling the special programming mode, "such that the internal program verification cannot be disabled via the special programming mode" does not appear have been disclosed in the instant application as originally filed. Accordingly, it appears to be new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 appears to be contrary to subject matter of the claim upon which it depends. Claim 1 recites, *inter alia:*

> "...wherein enabling special programming mode disables the internal program verification..."

However, claim 7 now recites, *inter alia:*

"...such that the internal verification cannot be disabled via the special programming mode."

Examiner is unsure how to reconcile the ambiguity offered supra, and has, accordingly, interpreted both claims as discussed supra within the body of the art rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter ms a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 5-14, 17-20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Intel Corporation Application Note AP-629 or AP-678, each taken separately, in view of Olivo et al.

With respect to claim 1, as well as claim 13, a method for programming a memory including enabling a "special" or test programming mode of a memory by entering a special programming access code in a state controller, wherein the memory includes automation circuitry for program verification, was known in the art at the time the claimed invention was made. See, for example, Intel Corporation Application Note AP-629 or AP-678, each taken separately. As one of ordinary skill in the art would readily appreciate, a plurality of words may be programmed into the memory during a

"special" or test mode, and the "special" or test programming mode exited after the tests are performed, with the programming modes of the flash memory being controlled by a write state machine in a well known manner (see, for example, page 2, line 21 to page 4, line 8 of the present specification, as well as pages 7-9 and 9-1 1 of Intel Corporation Application Note AP-678 and AP-629, respectively). The use of a write state machine allows the sequence of steps necessary to perform a programming operation to be easily controlled or automated. The various modes may be entered by entering a certain command or "code" in a command register which is forwarded to the write state machine. (See, particularly, Figure 1 of Application Note AP-678).

Application Note AP-629 also teaches that, in order to reduce programming and testing time of a nonvolatile memory, one should consider modifying the method or program flow to perform only necessary operations (see AP-629, at page 9, as well as page 10 and Figure 4). Application Note AP-629 further teaches that program verify operations initiated by external automatic test equipment (ATE) are redundant with internal program verify operations and that one can save time by not performing program verify operations (see AP-629, at page 9, column 2, e.g.).

Application Note AP-678 similarly teaches that verification of each location as it is programmed or written should be eliminated from the programming routines of automated flash memories (see AP-678, at page 9, column 1, e.g., as well as page 10 and Figure 3), since program verify operations initiated by external automatic test equipment (ATE) are redundant with internal program verify operations (see AP-678, at page 9, column 2, e.g.).

The Application Notes only specifically discuss saving time by not performing program verify operations with the external ATE, and do not teach disabling internal program verification operations during the "special" programming mode so that a plurality of words are programmed in the "special" or test mode without the memory performing internal program verification.

However, Olivo et al similarly disclose a method of programming a memory such as a flash nonvolatile memory during a "special" or test programming mode of the memory, and teaches disabling program verification operations by an internal state machine during the "special" programming mode so that a plurality of words may be programmed or tested without the memory performing internal program verification (see column 1, lines 26-62; column 2, lines 9-31; and column 4, lines 7-12 and 32-36, e.g.).

Olivo et al teach that overall testing speed may be improved, and that various testing values or parameters may be selected at will so that the memory test can be made fully independent of the control unit and the internal state machine (see column 5, lines 1-10, as well as column 1, lines 40-62, e.g.).

Enabling the internal program verification of the memory after exiting the special programming mode, wherein one or more words subsequently programmed into the memory are verified by the internal program verification performed by the memory is disclosed by Olivo et al in column 4, line 63 into column 5, line 10, as "after programming."

Accordingly, it would have been readily obvious to one of ordinary skill in the art at the time the claimed invention was made to disable program verification operations

by an internal state machine during a "special" programming mode, as taught by Olivo et al, in the flash memory apparatus and method of Intel Corporation Application Note AP-629 or AP-678, each taken separately, so that a plurality of words may be programmed without the memory performing internal program verification, because the Intel Corporation Application Note AP-629 or AP- 678, each taken separately, teaches that program verify operations initiated by external automatic test equipment (ATE) are redundant with internal program verify operations and that one should consider modifying the method or program flow to perform only necessary operations, and Olivo et al teach that an improved testing speed and greater flexibility in the testing process may be obtained by disabling or not performing internal program verification operations. The improvement in testing speed and ability to change the testing process independent of the control unit and internal state machine as taught by Olivo et al provide ample motivation and suggestion to disable internal program verification operations in a memory such as in the Intel Corporation Application Note AP-629 or AP-678, each taken separately, so as to avoid redundant program verify operations while providing an improved test speed and increased flexibility in the testing process. One of ordinary skill in the art would recognize that the "special" programming mode may be permanently disabled after being tested at the factory (e.g., manufacturing, clearly envisioned in AP-678, 2.3) so that a user is not able to enter the "special" programming mode.

With respect to claims 2 and 14, one of ordinary skill in the art would readily appreciate that the automated test equipment in the Intel Corporation Application Note

AP-629 or AP-678, each taken separately, may include processor and that the memory may be tested by resending a plurality of words previously sent into the memory.

With respect to claims 5-6 and 8, as well as claims 17-18 and 20, internal program verification by the memory may be enabled after the memory is tested so that the user can be assured that data is being properly programmed and is reliable. The programming and testing of nonvolatile memories is an iterative process so that if one of the plurality of words does not verify, the programming and verification are repeated (see page 2, lines 15-20 of the present specification, e.g.). If all of the plurality of words verify, the programming mode may be exited.

As per claims 7 and 19, one of ordinary skill in the art would recognize that the "special" programming mode may be permanently disabled after being tested at the factory so that a user is not able to enter the "special" programming mode.

With respect to claim 9, one of ordinary skill in the art would recognize that the number of iterations in the programming or testing sequence may obviously be varied. The ability to simply change the testing procedure is a key aspect of the teachings of Olivo et al, and the selection of a single iteration or a single programming pulse in order to quickly test the memory would have been readily obvious to one of ordinary skill in the art at the time the claimed invention was made.

With respect to claims 10-12 and 22-24, the Intel Corporation Application Note AP-629 or AP-678, each taken separately, teaches that programming the plurality of words into the memory may continue until a programming ending condition is met (see page 4, line 14 to page 5, line 3 of the present specification, e.g.). As one of ordinary

skill in the art would readily appreciate, the programming ending condition may be that a pre-selected time has elapsed (a "timeout" condition has occurred) or an ending address (the last address in the memory has been reached and the entire memory has been tested).

Response to Arguments

The previous double-patenting rejections have been overcome by submission and approval of the terminal disclaimer discussed supra. Accordingly, they have been removed.

With respect to applicants' argument that although Olivo et al disclose that an internal state machine can be disabled during a test period, such an internal state machine is unrelated and is not the same as internal program verification, examiner respectfully disagrees. As discussed in the abstract of Olivo et al, e.g., "...an internal state machine which governs the succession and timing of the memory programming phases..." is disclosed. Examiner asserts that the Olivo et al reference meets the instant claim language requirement for anticipation of same. Disabling the internal state machine of Olivo et al, as discussed supra, will, indeed, disable internal program verification, as discussed in the abstract, e.g.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does

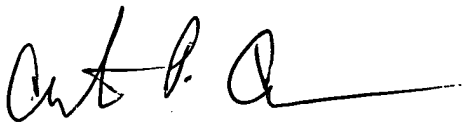
not include knowledge gleaned ***only*** from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian P. Chace whose telephone number is 571.272.4190. The examiner can normally be reached on MAXI FLEX.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571.272.4201. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christian P. Chace
Primary Examiner
Art Unit 2189